

A LIST OF NEW ENGLAND RUSTS COLLECTED IN 1931

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THE following is a list of rusts collected by Dr. Perley Spaulding and the writer in the states of New Hampshire, Vermont, Massachusetts, and Connecticut, during the year 1931. The first three states are well represented, but relatively few collections were made in Connecticut. The greater part of the determinations were made by the writer, but the rusts on *Carex* and a few others, the identity of which were in some doubt, were named by Dr. J. C. Arthur. Those specimens identified by Dr. Arthur, and those collected by persons other than Dr. Spaulding and the writer, are so indicated. Material of each collection cited is in the herbarium of the writer.

Much thanks is due to Dr. Perley Spaulding of the Office of Forest Pathology, U. S. Department of Agriculture, for his interest, guidance, and assistance in the collecting of specimens; to Dr. Ray E. Torrey of Massachusetts State College for the identification of the host plants; and to Dr. J. C. Arthur for the naming of some of the more difficult forms.

The nomenclature adopted is essentially that used by Arthur in the North American Flora, excepting that the genera *Puccinia* and *Uromyces* are retained, and the clover rusts are separated according to Davis (*Mycol.* **16**: 203-219. 1924). With but few exceptions the names conform with those used by Hunt in his treatment of the New England rusts (*Conn. State Geol. and Nat. Hist. Surv. Bul.* 36: 1-198. 1926). In naming the host plants, Gray's Manual, 7th edition, was followed wherever possible.

The list is arranged as follows: the rusts are listed alphabetically; beneath each species is given the hosts upon which the rust was found, these also arranged alphabetically; following the host is given the state and town in which the collection was made, followed by the stages of the rust found (I, aecial, II, uredinial, III, telial). Hunt's list of New England rusts, which brings together all of the previously published rusts of the region up to 1926, is used as a basis here in reporting a rust or a host as new. None of the forms reported here as new are given either in Hunt's list or in the U. S. Plant Disease Reporter to date or the U. S. Plant Disease Reporter Supplements to date, for the states indicated.

The following is the system for indicating new hosts or rusts:

Single asterisk preceding rust	New rust for New England
Single asterisk preceding host	New host for New England
Double asterisk preceding host	New host for the rust
Single asterisk preceding state	New host for the state
Double asterisk preceding state	New rust for the state

- \ CALYPTOSPORA COLUMNARIS (Alb. & Schw.) Kühn. *Vaccinium canadense* Kalm. N. H., Bethlehem, II.
- \ COLEOSPORIUM DELICATULUM (Arth. & Kern) Hedgc. & Long. *Solidago graminifolia* (L.) Salisb. MASS., Amherst, II, III; Orleans, III; VT., Townsend, II, III.
- \ COLEOSPORIUM SOLIDAGINIS (Schw.) Thüm. **Aster acuminatus* Michx. VT., Mt. Tabor, II. *Aster cordifolius* L. CONN., E. Granby, II. Coll. H. G. Eno; N. H., Bartlett, II; Bath, II, III; VT., Townsend, II. *Aster macrophyllus* L. *MASS., Wood's Hole, III. *Aster novi-belgii* L. MASS., Barnstable, II. *Aster puniceus* L. CONN., E. Granby, II; N. H., Fabyans, II, III; VT., Townsend, II. *Aster paniculatus* Lam. MASS., Barnstable, II. *Aster umbellatus* Mill. N. H., Jefferson, III. *Callistephus hortensis* Cass. CONN., E. Granby, II. *Pinus resinosa* Ait. N. H., Bethlehem, I. *Solidago bicolor* L. MASS., Sandwich, II; VT., Brattleboro, II. *Solidago caesia* L. CONN., N. Bloomfield, II, Coll. H. G. Eno. *Solidago caesia* L. var. *axillaris* (Pursh) Gray. CONN., N. Bloomfield, II. Coll. H. G. Eno; *VT., Mt. Tabor, II, III. *Solidago canadensis* L. CONN., E. Granby, II, Coll. H. G. Eno; N. H., Bethlehem, II; VT., Groton, II, III; Brattleboro, II, III. *Solidago juncea* Ait. CONN., E. Granby, II, Coll. H. G. Eno; *MASS., Petersham, III; N. H., Bath, II, III; VT., Townsend, II. *Solidago latifolia* L. CONN., N. Bloomfield, II, Coll. H. G. Eno; *N. H., Fabyans, II. *Solidago nemoralis* Ait. N. H., Bartlett, II. *Solidago odora* Ait. MASS., Sandwich, II, III. *Solidago rugosa* Mill. CONN., E. Granby, II, Coll. H. G. Eno; MASS., Petersham, III; Wellfleet, III; N. H., Bethlehem, II; VT., Townsend, II. *Solidago sempervirens* L. MASS., Wellfleet, II, III.
- \ CRONARTIUM COMPTONIAE Arth. *Myrica asplenifolia* L. MASS., Petersham, II, III; Truro, III; N. H., Franklin, II, III.
- \ CRONARTIUM RIBICOLA Fischer. *Ribes Cynosbati* L. N. H., Bethlehem, II, III. *Ribes lacustre* (Pers.) Poir. N. H., Crawfords, II, III. *Ribes prostratum* L'Hér. N. H., Bethlehem, III. *Ribes triste* Pall. N. H., Fabyans, II, III.
- \ FROMMEA OBTUSA (Strauss) Arth. *Potentilla canadensis* L. CONN., Salisbury III; E. Granby II, III (Det. J. C. Arthur); MASS., Amherst, II; N. H., Bethlehem, II; VT., Winhall, II, III.
- \ GYMNOCONIA INTERSTITIALIS (Schl.) Lagerh. (The long- and the short-cycled forms are considered together.) *Rubus allegheniensis* Porter. N. H., Franconia I; Waterville, I. *Rubus canadensis* L. N. H., Bartlett, III. *Rubus villosus* Ait. MASS., Amherst, I.
- \ GYMNOSPORANGIUM CORNUTUM (Pers.) Arth. *Pyrus americana* (Marsh.) DC. N. H., Pinkham Notch, I.

- \ GYMNOSPORANGIUM GERMINALE (Schw.) Kern. *Crataegus sp.* MASS., Petersham, I.
- \ GYMNOSPORANGIUM GLOBOSUM Farl. I. *Crataegus sp.* CONN., E. Granby, I; MASS., Petersham, I; VT., Brattleboro, I. *Juniperus virginiana* L. MASS., Dennis, III. *Pyrus Malus* L. CONN., E. Granby, I; MASS., Dennis, I.
- \ GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE Schw. *Pyrus Malus* L. CONN., Simsbury, I; MASS., Amherst, I.
- \ KUEHNEOLA UREDINIS (Link) Arth. *Rubus allegheniensis* Porter. MASS., Petersham, II; Sandwich, II; VT., Winhall, II. *Rubus sp.* VT., Mt. Tabor, II, III (Det. *J. C. Arthur*).
- \ MELAMPSORA BIGELOWII (Thüm.) Arth. *Salix cordata* Muhl. VT., Mt. Holly, II, III. *Salix discolor* Muhl. N. H., Bethlehem, II. **Salix rostrata* Rich. N. H., Twin Mt., II, Bethlehem, II.
- \ MELAMPSORA EUPHORBIAE (Schub.) Cast. II. *Euphorbia Cyparissias* L. N. H., Newport, II.
- \ MELAMPSORA HUMBOLDTIANA Speg. *Salix cordata* Muhl. *N. H., Jefferson, II, III; VT., Townsend, II, III. **Salix discolor* Muhl. VT., Peru, II, III. *Salix sp.* MASS., Brewster, II (Det. *J. C. Arthur*).
- \ MELAMPSORA MEDUSAE Thüm. *Larix laricina* (Du Roi) Koch. *N. H., Twin Mt. I (Det. *J. C. Arthur*). *Populus tremuloides* Michx. CONN., E. Granby, II, III, Coll. *H. G. Eno*; MASS., Petersham, II, III; Sandwich, II, III; N. H., Twin Mt., II; VT., Groton, II, III; Townsend, II, III.
- \ MELAMPSORELLA ELATINA (Alb. & Schw.) Arth. I. *Abies balsamea* (L.) Mill. N. H., Twin Mt. I.
- \ MELAMPSORIDIUM BETULAE (Schum.) Arth. *Betula populifolia* Marsh. MASS., Sandwich, II.
- \ MELAMPSOROPSIS ABIETINA (Alb. & Schw.) Arth. *Ledum groenlandicum* Oeder. N. H., Franconia, II.
- \ MELAMPSOROPSIS CASSANDRAE (Pk. & Clint.) Arth. *Chamaedaphne calyculata* (L.) Moench. N. H., Franconia, II. **Picea pungens* Engelm. N. H., Madison, I, Coll. *S. H. Boomer*.
- \ MELAMPSOROPSIS LEDICOLA (Pk.) Arth. *Picea mariana* (Mill.) B. S. P. N. H., Franconia, I (Det. *J. C. Arthur*).
- \ PHRAGMIDIUM AMERICANUM Diet. *Rosa humilis* Marsh. MASS., Eastham, II, III. *Rosa virginiana* Mill. **N. H., Bretton Woods, II, III (Det. *J. C. Arthur*).
- \ PUCCINIA ANEMONES-VIRGINIANAE Schw. *Anemone virginiana* L. VT., Brattleboro, III.
- \ PUCCINIA ANGUSTATA Peck. *Lycopus uniflorus* Michx. *N. H., Waterville, I. *Scirpus atrocinctus* Fern. N. H., Bartlett, II, III.
- \ PUCCINIA ASPARAGI DC. *Asparagus officinalis* L. MASS., Eastham, III.
- \ PUCCINIA ASTERIS Duby. *Aster acuminatus* Michx. N. H., Twin Mt., III. *Aster cordifolius* L. VT., Townsend, III. *Aster macrophyllus* L. N. H., Waterville, III; VT., Mt. Tabor, III. *Aster puniceus* L. *CONN., E. Granby, III.

- \ PUCCINIA ASTERUM (Schw.) Kern. **Aster acuminatus* Michx. N. H., Fabyans, I. *Aster puniceus* L. N. H., Fabyans, I. *Carex scoparia* Schkuhr. *N. H., Fabyans, II, III (Det. J. C. Arthur). *Carex straminea* Willd. *VT., Townsend, II, III (Det. J. C. Arthur). *Solidago graminifolia* (L.) Salisb. *N. H., Franconia, I; Twin Mt., I; R. I., Block Island, I. **Solidago latifolia* L. N. H., Fabyans, I; Twin Mt., I.
- \ PUCCINIA BARDANAE Corda. *Arctium minus* Bernh. MASS., Amherst, III; Wellfleet, III; **VT., Peru, III.
- \ PUCCINIA CIRCAEAE Pers. *Circaea alpina* L. N. H., Franconia, III; VT., Brattleboro, III.
- \ PUCCINIA CLEMATIDIS (DC.) Lagerh. *Agropyron repens* (L.) Beauv. N. H., Franconia, II (Det. J. C. Arthur). ***Cinna latifolia* L. N. H., Fabyans, II (Det. J. C. Arthur). *Clematis virginiana* L. N. H., Fabyans, I. *Thalictrum polygamum* Muhl. *N. H., Fabyans, I.
- \ | PUCCINIA CORONATA Corda. ***Ammophila breviligulata* Fern. MASS., Provincetown, II, III. *Calamagrostis canadensis* (Michx.) Beauv. *N. H., Jefferson, III.
- \ PUCCINIA CYANI (Schleich.) Pass. *Centaurea Cyanus* L. MASS., Amherst, III.
- \ PUCCINIA DISPERSA Erics. *Secale cereale* L. MASS., Sandwich, II, III.
- \ PUCCINIA ERIOPHORI Thüm. *Senecio Robbinsii* Oakes. N. H., Waterville, I.
- \ PUCCINIA GRAMINIS Pers. *Agropyron repens* (L.) Beauv. MASS., Amherst, III. *Agrostis alba* L. MASS., Chatham, III; N. H., Bath, III; VT., Winhall, III; *Berberis vulgaris* L. MASS., Amherst, I. *Phleum pratense* L. MASS., Amherst, II; N. H., Jefferson, II; VT., Winhall, II.
- \ PUCCINIA GROSSULARIAE (Schum.) Lagerh. *Carex arctata* Boott. *VT., Mt. Tabor, II, III (Det. J. C. Arthur). *Carex crinita* Lam. N. H., Jefferson, II, III (Det. J. C. Arthur); Fabyans, II (Det. J. C. Arthur); VT., Winhall, II, III (Det. J. C. Arthur). *Carex debilis* Michx. *N. H., Franconia, II; Fabyans, II (Det. J. C. Arthur). *Carex intumescens* Rudge. N. H., Franconia, II (Det. J. C. Arthur). **Carex scabrata* Schw. N. H., Fabyans, II (Det. J. C. Arthur). *Ribes prostratum* L'Hér. N. H., Bethlehem, I.
- \ PUCCINIA HELIANTHI Schw. *Helianthus annuus* L. *N. H., Newport, III; VT., Winhall, III. *Helianthus decapetalus* L. CONN., N. Bloomfield, III, Coll. H. G. Eno; VT., Townsend, III. *Helianthus tuberosus* L. CONN., E. Granby, II, Coll. H. G. Eno; VT., Townsend, III.
- \ PUCCINIA HEUCHERAE (Schw.) Diet. *Tiarella cordifolia* L. N. H., Bethlehem, III.
- \ PUCCINIA HIERACH (Schum.) Mart. *Taraxacum officinale* Weber. MASS., Amherst, II; Falmouth, III; N. H., Crawfords, II, III; VT., Mt. Tabor, III.

- \ *PUCCINIA LOBELIAE W. Gerard. *Lobelia siphilitica* L. Conn., Salisbury, III.
 \ PUCCINIA MALVACEARUM Bert. *Althaea rosea* Cav. Conn., E. Granby, III, Coll. H. G. Eno; Mass., Amherst, III; Falmouth, III; N. H., Bartlett, III; Vt., Peru, III. *Malva rotundifolia* L. Mass., Eastham, III; N. H., Bartlett, III.
 \ PUCCINIA MESOMAJALIS B. & C. *Clintonia borealis* (Ait.) Raf. N. H., Fabyans, III.
 \ PUCCINIA ORBICULA Pk. & Clint. *Prenanthes altissima* L. N. H., Fabyans, II, III.
 \ PUCCINIA PIMPINELLAE (Str.) Mart. *Osmorrhiza Claytoni* (Michx.) Clarke. *N. H., Fabyans, II, III.
 \ PUCCINIA POLYGONI-AMPHIBII Pers. *Polygonum virginianum* L. Conn., E. Granby, II, III, Coll. H. G. Eno.
 \ PUCCINIA PUNCTATA Link. *Galium asprellum* Michx. N. H., Twin Mt., I.
 \ PUCCINIA RECEDENS Sydow. ***Senecio Robbinsii* Oakes. N. H., Bethlehem, III.
 \ PUCCINIA SAMBUCI (Schw.) Kern. *Carex lurida* Wahlenb. *Vt., Townsend, II, III (Det. J. C. Arthur).
 \ PUCCINIA SEYMOURIANA Arth. *Spartina Michauxiana* Hitchc. Mass., Barnstable, III.
 \ PUCCINIA SUAVEOLENS (Pers.) Rostr. III. *Cirsium arvense* (L.) Scop. Vt., Mt. Tabor, III.
 \ PUCCINIA VIOLAE (Schum.) DC. *Viola pallens* (Banks) Brainerd. *N. H., Franconia, I. *Viola* sp. Mass., Falmouth, III; N. H., Franconia, II, III; Crawford, I, II; Hanover, III; Vt., Mt. Tabor, III.
 \ *PUCCINIA WALDSTEINIAE M. A. Curtis. *Waldsteinia fragarioides* (Michx.) Tratt. Vt., Mt. Holly, III.
 \ PUCCINIASTRUM AGRIMONIAE (Schw.) Tranz. *Agrimonia gryposepala* Wallr. Conn., Bloomfield, II; Vt., Mt. Tabor, II.
 \ PUCCINIASTRUM AMERICANUM (Farl.) Arth. *Rubus idaeus* L. var. *aculeatissimus* (C. A. Mey.) R. & T. N. H., Twin Mt., II; Fabyans, II; **Vt., Townsend, II.
 \ PUCCINIASTRUM ARCTICUM (Lagerh.) Tranz. *Rubus triflorus* Richards. N. H., Fabyans, II; Bartlett, II; **Vt., Peru, II.
 \ PUCCINIASTRUM MYRTILLI (Schum.) Arth. *Gaylussacia baccata* (Wang.) C. Koch. Mass., Wellfleet, II; *Vt., Mt. Tabor, II. *Rhododendron canadense* (L.) B. S. P. N. H., Jefferson, II, III. ***Rhododendron roseum* (Loisel.) Rehder. *Vt., Mt. Tabor, II. *Vaccinium pennsylvanicum* Lam. N. H., Fabyans, II. ***Vaccinium Vitisidaea* L. N. H., Franconia, II (Det. J. C. Arthur).
 \ PUCCINIASTRUM POTENTILLAE Kom. *Potentilla tridentata* Ait. N. H., Bartlett, II.
 \ PUCCINIASTRUM PUSTULATUM (Pers.) Diet. *Epilobium angustifolium* L. N. H., Bethlehem, II, III; Vt., Mt. Tabor, II, III. **Epilobium hirsutum* L. Mass., Wellfleet, II.

- \ UREDINOPSIS MIRABILIS (Pk.) Magn. I. *Abies balsamea* (L.) Mill. N. H., Bethlehem, I. *Onoclea sensibilis* L. MASS., Petersham, II, III; N. H., Bethlehem, II; VT., Winhall, II.
 \ UREDINOPSIS OSMUNDAE Magn. *Abies balsamea* (L.) Mill. N. H., Bethlehem, I. *Osmunda cinnamomea* L. MASS., Petersham, II, III; N. H., Bethlehem, II, III; *VT., Townsend, III. *Osmunda Claytoniana* L. N. H., Fabyans, II.
 \ UROMYCES APPENDICULATUS (Pers.) Lèv. *Phaseolus vulgaris* L. N. H., Bartlett, II, III.
 \ UROMYCES CALADII (Schw.) Farl. *Arisaema triphyllum* (L.) Schott. VT., Bethel, I.
 \ *UROMYCES DACTYLIDIS Otth. *Dactylis glomerata* L. MASS., Brewster, II, III. (Det. J. C. Arthur).
 \ UROMYCES FABAE (Pers.) DeBary. *Vicia Cracca* L. VT., Mt. Tabor, II, III.
 \ UROMYCES HOUSTONIATUS (Schw.) Sheld. *Houstonia caerulea* L. CONN., E. Granby, I; N. H., Twin Mt., I.
 \ UROMYCES HYBRIDI Davis. *Trifolium hybridum* L. N. H., Twin Mt., II; Franconia, III; VT., Bethel, III.
 \ UROMYCES HYPERICI-FRONDOSI (Schw.) Arth. *Hypericum ellipticum* Hook. N. H., Pinkham Notch, I, II, III.
 \ UROMYCES LESPEDEZAE-PROCUMBENTIS (Schw.) Curt. *Lespedeza hirta* (L.) Horn. MASS., Sandwich, III.
 \ UROMYCES POLYGONI (Pers.) Fekl. *Polygonum aviculare* L. MASS., Amherst, II, III; Brewster, II, III.
 \ UROMYCES TRIFOLII (Hedw. f.) Lèv. *Trifolium pratense* L. MASS., Amherst, II; Yarmouth, II, III; N. H., Bartlett, II; VT., Townsend, II, III.
 \ UROMYCES TRIFOLII-REPENTIS (Cast.) Liro. *Trifolium repens* L. MASS., Sandwich, III; N. H., Twin Mt., II; VT., Townsend, III.

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TWO CONTEMPORARY EVALUATIONS OF THE COLONIZATION BY SIR WALTER RALEIGH.—For several years I have had the title Fisher Professor of Natural History; consequently I very regularly receive announcements and circulars of historical and governmental institutions and publications, addressed to me at the "Department of History." Since I can scarcely hope to justify such a gratuitous distinction by original studies, I may perhaps be pardoned, as a natural "historian," for drawing out of practical oblivion the following illuminating passages. The first, written by John Gerard and published in 1597, accompanied an account of *Asclepias* or Milkweed: